

are steadily adding to the stock of knowledge on this subject, and their maps, sections, and explanations are diffusing correct information. They can work but slowly, however; and much can be done by others: and of this the valuable and lucid memoir by Mr. Marcus Scott, recently published in the Geological Society's Journal, on the unconformability of the Upper and the Lower Coal-measures of Coalbrook Dale, is a striking example.

The study of coal and the coal-measures has been greatly advanced by Mr. Hull's treatise; for the subject is therein carefully and clearly presented in its many different aspects, with much light derived from his own and others' experience; and his map and sections bring to the eye much valuable practical and theoretical information, in which the results of Mr. Hull's own labours have a conspicuous and most worthy standing*. Doubtless further editions of the work before us will be called for. The increasing interest shown by the public in geology, and the direct interest we all feel in the coal-supply, will induce the author to still further improve his work with amendments of condensed information. Even now, few books are more worthy to bear the motto "*scientia et utilitas.*"

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

May 27, 1862.—Prof. Huxley, F.R.S., V.P., in the Chair.

ON A NEW SPECIES OF CHLAMYDERA, OR BOWER-BIRD.

By JOHN GOULD, ESQ., F.R.S., ETC.

I am indebted to the researches of F. T. Gregory, Esq., the West Australian explorer, for a knowledge of a new species of this group of birds, which are rendered remarkable by their habit of constructing bowers or playing-places. It was collected by Mr. Gregory in North-western Australia, and is doubtless the species which constructs the bowers described by Captain (now Sir George) Grey in the first volume of his 'Travels,' pp. 196 and 245, where he states that, on gaining the summit of one of the sandstone ranges forming the watershed of the streams flowing into the Glenelg and Prince Regent's Rivers, "we fell in with a very remarkable nest, or what appeared to me to be such. We had previously seen several of them, and they had always afforded us food for conjecture as to the agent and purpose of such singular structures." This "very curious sort of nest, which was frequently found by myself and other individuals of the party, not only along the sea-shore, but in some instances at a distance of six or seven miles from it, I once conceived must have belonged to a Kangaroo-rat, until Mr. Gould informed me that it is

* Mr. Hull's elaboration of the probable limits of the Carboniferous deposits in England, and of the distribution of the sandstones, clays, and limestones of that formation, is published, with a map, in the 'Journal of the Geological Society,' No. 70, May 1862.

the run or playing-ground of the bird he has named *Chlamydera nuchalis*. These nests were formed of dead grass and parts of bushes, sunk a slight depth into two parallel furrows in sandy soil, and then nicely arched above. But the most remarkable fact connected with them was, that they were always full of broken shells, large heaps of which protruded from each extremity of the nest; these were invariably sea-shells. In one instance, in the nest the most remote from the sea that we discovered, one of the men of the party found, and brought to me, the stone of some fruit which had evidently been rolled in the sea. These stones he found lying in a heap in the nest; and they are now in my possession."

The specimen sent to me by Mr. Gregory bears a very general resemblance to the *Chlamydera maculata*, being spotted all over like that species; but it differs in the guttations of the upper surface being of a larger size and much more distinct, in the abdomen being buff, and in the shafts of the primaries being straw-yellow. In all probability, the specimen is a female, since there is no trace of the beautiful lilaceous nuchal mark seen in the males only of *Chlamydera maculata* and *C. nuchalis*. Of this well-defined group there are now known three very distinct species, viz., the *C. maculata*, of the east coast; the *C. nuchalis*, which frequents the northern parts; and the *C. guttata*, of the north-western provinces of Australia.

CHLAMYDERA GUTTATA, Gould.

General tint of the upper surface and wings deep-brownish black, with a spot of rich buff at the tip of each feather, those of the head and nape being very small, while those on the body and wings are of large size, accordant, in fact, with the increased size of the feathers; the spots on the tips of the greater wing-coverts are not so round as those on the back; the primaries are very pale brown, fading into white on the basal portion of their inner webs, which is yellow on the under surface; their shafts straw-yellow; tail-feathers pale brown, with buff shafts and white tips; throat-feathers brown at the base, with an arrowhead-shaped mark of pale buff at the tip of each, the buff tips becoming much larger on the chest; centre of the abdomen pale buff; flanks, thighs, and under tail-coverts buff, barred with light brown; bill black; gape rich yellow; feet apparently very dark olive.

Total length $11\frac{1}{2}$ inches; bill $1\frac{1}{4}$; wing 6; tail $4\frac{3}{4}$; tarsi $1\frac{3}{4}$.

Hab. North-western Australia.

Remark.—The primaries of the specimen described are much worn; they are doubtless tipped with white in fresh-moulted specimens.

June 10, 1862.—Professor Busk, F.R.S., in the Chair.

ON SOME NEW AND RARE BIRDS FROM NEW GUINEA.

BY ALFRED RUSSEL WALLACE.

The birds now brought before the Society were collected by my assistant, Mr. Allen, on his last voyage. They comprise several interesting species, hitherto only known by specimens in the French

or Dutch collections, and now, I believe, for the first time exhibited in England, viz. :—

Nasiterna pygmæa, Q. & G. Remarkable as being the smallest of the *Psittaci*, and for its curious, rigid, spined tail.

Tanysiptera nympha, G. R. Gray. This specimen decides the locality of this interesting and beautiful bird to be the N. W. peninsula of New Guinea, in the interior.

Peltops Blainvillii, Garn. This rare bird also inhabits the island of Mysol, where a single specimen was obtained by Herr Rosenberg. Mine came from the N. W. of New Guinea.

Eupetes cærulescens, Temm. This bird and the last seem quite out of place in New Guinea, as we must pass over all the Moluccas and Celebes to find their nearest allies in Borneo, Java, and Sumatra.

Ptilorhynchus buccoides, Müll.

Hierococcyx leucolophus, Müll.

Campephaga melas, Müll.

Besides these, adult specimens of the fine *Talegalla Cuvieri* were also obtained, and Mr. Allen's collection also comprises five new species of great interest—a Pigeon, a Kingfisher, a Parrot, and two Passeres, of which the descriptions follow.

1. CORIPHILUS RUBRONOTATUS.

Above dark green; beneath yellow green; a large spot on the forehead, sides of the breast, and under wing-coverts bright red; a spot on the upper tail-coverts dull red; ear-coverts deep blue; wings and tail as in *C. placentis*. Bill and cere carmine-red; feet pale red.

Total length $9\frac{1}{2}$ in.; wing $3\frac{3}{10}$ in.

Allied to *C. placentis*, but smaller, and wants the red face and blue rump which distinguish that species, as well as the yellow-tinged crown, which is replaced by a red spot.

Hab. Salwatty, and the N. W. extremity of New Guinea.!

2. HALCYON NIGROCYANEA.

Back, and sides of the head and neck, deep black; throat, lower part of the breast, and belly white; forehead and crown deep blue, margined from the eyes round the nape with lighter blue; a band across the breast, the shoulders, and wing-coverts deep blue; quills dusky black, margined with blue to near the tips; middle of the back narrowly white, shading into blue, which becomes dark on the tail-coverts; tail deep blue, inner margins of the feathers and beneath black; under tail-coverts black, tipped with blue; sides of the breast and flanks black; under wing-coverts black, with a white central band. Bill black, pale in the centre beneath; feet black.

Total length 9 in.; wing $3\frac{5}{8}$ in.

The young bird has slightly rufous lores, and the pectoral band rufous mingled with black and blue.

Hab. N. W. peninsula of New Guinea.

3. TODOPSIS GRAYI.

Beneath bluish white, almost white on the throat; head light-

greenish blue, the centre of the crown dusky; a black spot on the ear-coverts extending towards the nape; back dusky, the feathers margined with greenish blue; wings dusky, the quills margined with rufous olive, shoulder-coverts margined with greenish blue; tail dusky olive, with a minute whitish spot at the tips of the feathers; thighs rufous-tipped. Bill black; feet dusky.

Total length $5\frac{5}{8}$ in.; wing $2\frac{1}{2}$ in.; bill from gape $\frac{8}{10}$ in.

The bill in this species is nearly as broad as in *Machærirhynchus*. I have named this interesting bird after Mr. George Robert Gray, who has described the other species of this genus sent home by me.

Hab. N. W. peninsula of New Guinea: Mountains of Sorong.

4. GRACULA PECTORALIS.

Black, the feathers broadly margined with metallic green and purple; plumes of the neck and breast decomposed, and of a rich orange-buff colour, as are also the vent, rump, and upper tail-coverts; on the nape a collar of whitish buff reaching round to the orange of the throat; under tail-coverts cream-white, tinged with orange at the base; a white band across the wings towards the tips. Iris yellow; bill and feet pale yellow.

Total length 10 in.; wing $5\frac{3}{4}$ in.

The young bird has the breast and belly black, uniformly margined with light orange.

This species differs from the rest of the genus in having neither wattles nor naked skin on the face, but in general structure and coloration closely resembles the other species.

Hab. N. W. peninsula of New Guinea: Sorong.

5. PTILONOPUS HUMERALIS.

Very near *P. iozonus*, G. R. Gray, but a little larger, and at once distinguished by the violet-grey patch on the shoulder having its lower half deep purple; the tail also wants the grey apical band of that species, which is replaced by a subapical narrow one, only visible on the lateral feathers and beneath. The wing-coverts are all of a rich violet grey, margined with green. Chin ashy; the rest as in *P. iozonus*. Bill greenish, tipped with bright yellow, base above red and swollen; feet purple-red.

Total length $8\frac{3}{4}$ in.; wing $4\frac{7}{8}$ in.

Hab. Salwatty, and the adjacent coast of New Guinea.

DESCRIPTIONS OF SOME NEW GENERA AND SPECIES OF FISHES
OBTAINED AT MADEIRA. BY JAMES YATE JOHNSON, CORR.
MEM. Z. S.

Order MALACOPTERYGII APODES, Cuv.

Sect. PHANEROMYCTERES, Kaup.

Fam. MURENIDÆ.

PSEUDOMURENA, gen. nov.

Dorsal, anal, and caudal fins united; no pectoral fins; gill-open-

ings lateral; no teeth on the mesial line of the palate; in the jaws uniserial serrate teeth, having a tubercle at the posterior base.

This genus differs from *Muraena* in having no teeth on the mesial line, and in the form of the jaw-teeth.

PSEUDOMURÆNA MADERENSIS, sp. n.

Body anguilliform, attenuating backwards from the nape, which is deep and thick. Skin soft, thick, scaleless. Colour a yellowish brown, darker on the head; the anterior fourth of the body marked with undulating lines, or narrow bands, of deeper brown, which are arranged longitudinally before the gill-openings, and transversely behind them, the change of direction being gradual.

The head is gibbous behind the small eyes, which are oval, covered with skin, and placed over the middle of the upper jaw. The snout is obtuse and rounded; the throat swollen. The posterior nostrils are small, with slightly raised borders, and are placed a little in front of the vertical through the middle of the eye. The anterior nostrils issue in free tubes, which do not quite reach to the tip of the snout. The jaws are of moderate length and subequal; the lips moderately thick; the inside of the mouth fuscous. The teeth are uniserial, rather stout, pointed, conico-compressed, with serrate edges, and a tubercle at the posterior base. They are slightly curved backwards, and are longer in front than behind. In the upper jaw there are about 16; in the lower jaw from 24 to 34. No teeth on the mesial line or on the vomer. Rictus moderate. No barbel. Gill-openings small, round, placed at the sides of the body about the middle of the height. No pectorals or visible lateral line. The dorsal fin commences at the nape, in front of the gill-openings, and is continuous with the caudal and the anal fins; it is higher behind than in front. The vent is in the hinder half of the body, and about $\frac{1}{16}$ th of the total length behind the middle. The anal fin commences within a short distance of the vent; it is very low in front, where it is cloaked by thick skin, and where there is a furrow at each side of and parallel with its base; further behind, there are two parallel furrows. The tail is compressed, the fin narrow and rounded. All the fins are covered with a thick skin.



Although several specimens of this Eel have been obtained (some of which have been sent to the British Museum), it must still be considered as a rare fish. In colouring it resembles *Thyrsoidea unicolor*, Kaup, from which it differs generically in the uniserial dentition.

The following measurements were taken from a specimen having a total length of $40\frac{3}{4}$ inches, with a depth, near the gill-openings, of $3\frac{1}{2}$ inches:—

	Inches.
Rictus	$2\frac{4}{10}$
Gill-openings, distance from snout	5
Vent, distance from snout	$22\frac{1}{4}$
Dorsal fin, distance from snout	$4\frac{1}{2}$

In another specimen, $36\frac{1}{2}$ inches long, the longer axis of the eye

measured $\frac{3}{10}$ inch, and the longest teeth were less than $\frac{1}{5}$ th of an inch in length. The rictus was $1\frac{3}{10}$ inch in depth.

THYRSOIDEA ATLANTICA, sp. n.

Anguilliform, compressed; attenuate both ways from middle of body. Skin smooth, scaleless, white, with one dusky oval blotch on one side of body, and two or three such blotches on the other side, unsymmetrically placed. The longer axis of these blotches is from one-third to one-half an inch across. On the fins near the posterior extremity of the body are several similar blotches.

A single specimen of this Eel has occurred, the dimensions of which are embodied in this description.

Total length 23 inches; depth $1\frac{4}{10}$ inch, taken about an inch in advance of the vent.

Head compressed, rising behind the eyes; depth through head and swollen throat, $1\frac{4}{10}$ inch. Eyes covered with skin, placed a little in advance of the middle of the upper jaw, rather less than one-fifth of an inch in diameter. Hinder nostril-tubes shorter than anterior, placed a little in front of the vertical from the anterior orbit of eye. Front nostril-tubes reaching a little beyond lip. Mouth cleft rather more than an inch deep. Jaws rather slender, somewhat curved, and not capable of shutting closely on account of the length of the front teeth and the curvature of the jaws. Lower jaw a little longer than the upper, without a barbel. Teeth in both jaws slender, pointed, somewhat compressed, curving backwards. In the upper jaw there are two rows at each side, those of the inner row being longer. A row of seven teeth along the middle of the palate. The longest teeth in the jaw are rather more than one-fifth of an inch in length. In the lower jaw there is a single row at each side; in front there appear to be two rows. Gill-clefts $\frac{3}{10}$ inch long, narrow, placed about the middle of the sides, a little posterior to commencement of dorsal fin, and $2\frac{1}{2}$ inches from snout. The dorsal fin commences at the nape, $2\frac{1}{10}$ inches from snout, is lower in front than behind, and unites with the caudal fin, like the anal fin, without a break. Vent about 9 inches from tip of mandible, in anterior half of body. Anal fin commences near vent, and is very low at first. All the fins are covered with skin like that of the body.

The specimen was taken in the sea near Madeira, in the month of June 1859, and has been deposited in the British Museum.

Fam. SYNAPHOBRANCHIDÆ.

SYNAPHOBRANCHUS, gen. nov.

Dorsal, anal, and caudal fins united. Pectoral fins present. Gill-openings in close proximity on the under side of the body, having a single external aperture, with an internal dividing membrane. Branchiæ four. A row of acute teeth in each jaw, with an external band of minute teeth. Teeth on the vomer and on the mesial line of the palate. Scales on the skin.

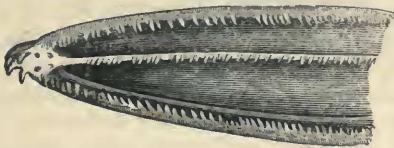
This genus forms the type of a new family of Malacopterygian

Apodals, which differs from all previously established families, except the *Symbranchidæ*, in having the gill-openings close together on the ventral aspect; and from the *Symbranchidæ* it is distinguished by the presence of fins. Moreover, from the *Muraenidæ* it is separated by the possession of pectoral fins, and from the *Congridæ* by the possession of scales and by the vent being before the commencement of the dorsal fin.

SYNAPHOBRANCHUS KAUPII, sp. n.

Anguilliform, compressed, attenuate in both directions from the neighbourhood of the vent; of a dull brown colour, darker on the belly. The skin contains small oval scales, set obliquely and at right angles to each other.

The head is subcompressed, depressed, and flat above; it exhibits no gibbosity, nor is the throat swollen. The eye is covered with skin; it is of moderate size, and placed at the side of the head, over the middle of the oral cleft, three diameters distant from the tip of the snout. The posterior nostril is in front of the eye and has a raised border. The anterior nostril has a short tube, which does not quite reach to the lip, and is attached in front to the snout, the orifice being directed forwards. Rictus deep. The jaws are narrow, pointed, subequal, and without barbels. The lips are cartilaginous, especially the upper lip, which forms a conical snout, projecting much beyond the jaw. There are teeth in both jaws, consisting of an inner row of short, slender, conical, pointed, closely-set teeth, with an exterior band of scobinate teeth, which become reduced to a single row in front. On the vomer is a group of from nine to fifteen conical teeth, the first two or three of which are short, the others rather longer than those in the jaw. On the mesial line of the palate there is a row of minute, sharp teeth curving backwards; and the pharyngeals are armed with scobinate bands of teeth. The inside of the mouth is black, as well



as the tongue, which is small, toothless, and free at the tip. The gill-openings are side by side on the ventral aspect of the body, in advance of the pectoral fins; they are separated by a membrane placed inside a single external aperture. The dorsal fin commences behind the vent, a little posterior to the commencement of the second third of the total length, and joins the caudal, like the anal fin, without a break. It is higher behind, but is throughout much lower than the anal; the greater part of it is covered with a scaly skin, as is also the greater part of the anal fin. The pectoral fins are well developed, pointed, and situate a little behind the gill-openings, below the middle of the height. The ventral fins are wanting. The vent is in the first third of the total length. The anal fin commences

just behind the vent; it is considerably higher about the middle and behind than in front. The caudal is rounded. The lateral line is distinctly marked; it falls gently from the shoulder, but for the greater part of its length is straight along the middle of the body. The air-bladder is long, being more than one-third of the length of the body. The food found in the stomachs of dissected specimens consisted of the remains of fishes and crustaceans. The peritoneal lining is of a dark blue colour.

Dedicated to Dr. Kaup of Darmstadt, who has well studied this order of fishes. Specimens have been sent to the British Museum.

The following figures give the dimensions in inches of one of the larger examples :—

Total length	32
Depth in the neighbourhood of the vent	3
Thickness	$1\frac{3}{10}$
Distance from snout to pectoral	$4\frac{1}{2}$
——— from snout to vertical of vent	$9\frac{1}{2}$
——— from snout to vertical of commencement of dorsal	$11\frac{1}{4}$
Eye, diameter, nearly	$\frac{1}{2}$
Rictus, depth	$2\frac{1}{5}$
———, width at back	$\frac{9}{10}$
Length of bone of upper jaw	$2\frac{8}{10}$
——— of gill-openings	$\frac{9}{10}$
——— of pectoral	$1\frac{1}{2}$
Width of base of pectoral, nearly	$\frac{1}{2}$
Length of rays at middle of anal	$1\frac{7}{10}$
——— of rays of caudal	$\frac{7}{10}$

Order ANACANTHINI, Müll.

Fam. GADIDÆ.

LÆMONEMA, Günther, MS.

The genus *Læmonema*, established by Dr. A. Günther on a Mediterranean fish hitherto assigned to *Phycis*, is distinguished from the latter genus by the shortness of the base of the first dorsal fin, and by the rounded outline of the patch of vomerine teeth. A full diagnosis of the genus will appear in the forthcoming fourth volume of the 'Catalogue of Fishes in the British Museum.' A second species of the genus having occurred, I proceed to describe it.

LÆMONEMA ROBUSTUM, sp. n.

1st D. 5. 2nd D. 50, 51. A. 48. V. 1. P. 28. C. 16. M. B. 7. Scales of lateral line about 126.

Body *Phycis*-like, thick before, much compressed behind, of a dull-brown colour; the rays of the dorsal, anal, and pectoral fins being of a dull purplish-red. The scales are very small; between the base of the first dorsal fin and the lateral line fifteen rows of scales may be counted. The length of the head is equal to the height of the body under the first dorsal fin, and, compared with the total

length of the fish, is as 1 to 4. It is depressed, unarmed, flat between the eyes, with a longitudinal depression at the nape; the snout short and rounded; the cheeks convex and scaly. The round eye is placed high up, so as to take part in the profile; it is contained four times on the head, and is distant one and one-third of its diameter from the tip of the snout; the space between the eyes is equal to one diameter. The nostrils are rather small; at the posterior edge of the anterior one there is a strap-shaped skinny appendage. The mouth is wide, and when open the jaws form a broad oval; its anterior, as well as the tongue, is of a pale-grey colour. The upper border of the mouth is formed by the premaxillary; the maxillary is broad below, and reaches back to the vertical from the middle of the eye; the skin covering it is colourless, for when the mouth is closed it slides underneath the skin covering the posterior bones. The under jaw closes inside the upper one. There are scobinate bands of conical teeth in both jaws, those of the outer rows being rather larger. The band of the upper jaw is broader in front than the band of the lower jaw, but it narrows behind. There is a small round patch of similar teeth on the vomer, and also patches on the pharyngeals; but the palatines and the tongue are unarmed. The tongue is thick, broad, and pointed.

The gill-openings are large. The edges of the opercle and preopercle are rounded; and the edge of the latter is distinctly visible, not concealed by the skin. The chin carries a barbel. The first dorsal fin is short, having only five rays, of which the first is elongate, its upper part being setaceous; the length of this ray to the total length of the body is as 1 to $5\frac{1}{4}$. The interval between the two dorsal fins is short. The second dorsal fin has its base about 16 times the length of the base of the first, and its highest portion is less than half the length of the first ray of the first dorsal; it falls about the middle, and then rises again, its termination being prolonged and pointed. The specimen has been wounded in the back during its life, and, though the wound has healed, a few (but probably not more than two or three) of the rays have been carried away. The remaining rays are forty-eight in number. None of the dorsal or anal fins are fleshy, neither are there any scales upon them. The pectoral fins are inserted a little in front of the first dorsal, and rather above the middle of the height; their apices are pointed, and they are of moderate length, reaching back beyond the commencement of the anal fin. The jugular ventral fins are forked, the longer division becoming filiform and reaching back considerably beyond the commencement of the anal fin, and a little beyond the tips of the pectoral fins. These fins are longer than the head, and, compared with the total length of the fish, they are as 1 to $3\frac{1}{2}$. The difference between the lengths of the two divisions of the ray is to the length of the longer as 1 to $4\frac{1}{3}$. The vent is surrounded by a black ring, and is placed under the fourth ray of the second dorsal fin. The anal fin commences under the seventh or eighth ray of the second dorsal fin. It is highest in front; at the middle it falls in, and then ends a short distance in front of the second dorsal with an acute

prolongation. The caudal fin is truncate, and rather more than a ninth of the total length. The tail is much compressed and attenuate. The lateral line is a groove that forks above the opercle. After the junction of the divisions it rises a little, and then falls gradually; but under the anterior portion of the second dorsal fin there is a rapid descent, after which it is straight along the tail.

The single example on which this species has been founded was taken near Madeira, in the month of March, and is now in the British Museum. Its dimensions, expressed in inches, are given in the following table:—

Total length	14 $\frac{1}{8}$
Height under first dorsal	3 $\frac{1}{2}$
Thickness near base of pectorals	2
Head	3 $\frac{1}{2}$
Eye, diameter	$\frac{7}{10}$
Mouth, width from side to side	1 $\frac{3}{4}$
Barbel, length	$\frac{11}{20}$
First dorsal fin, distance from snout	3 $\frac{9}{10}$
— — —, length of first ray	2 $\frac{7}{10}$
— — —, length of second ray	1 $\frac{9}{10}$
— — —, length of last ray	$\frac{7}{10}$
— — —, base of fin	$\frac{5}{10}$
Second dorsal, distance from first dorsal	$\frac{2}{10}$
— — —, length of base	8 $\frac{1}{4}$
— — —, height in front	1 $\frac{2}{10}$
Pectorals, distance from snout	4
— — —, length	2 $\frac{7}{10}$
— — —, width of base	$\frac{6}{10}$
Ventrals, distance from tip of mandible, mouth open	2 $\frac{8}{10}$
— — —, length	4
Anal, distance from tip of mandible, mouth open	6 $\frac{1}{8}$
— — —, height in front	1 $\frac{1}{4}$
Caudal, length	1 $\frac{1}{2}$
Tail, height behind second dorsal	$\frac{4}{10}$

Order ACANTHOPTERYGII, Cuv.

Fam. TRICHIURIDÆ.

NESSIARCHUS, gen. nov.

Body elongate, covered with small scales. Cleft of mouth deep. Several strong teeth in the jaws; none on the palatine bones or the vomer. First dorsal not extending to the second. No finlets behind either the dorsal or anal fin. Perfect thoracic ventral fins present. Caudal fin well developed. A dagger-shaped spine behind the vent. No keel on the tail. One lateral line. Seven branchiostegal rays. An air-bladder. Pyloric cæca in moderate number.

This genus may be entered in the Synopsis of Trichiuroid genera, given in the Cat. of the Brit. Mus. Collection, thus:—

“Ventrals present: a dagger-shaped spine behind the vent.”

NESIARCHUS NASUTUS, sp. n.

1st D. 20. 2nd D. 2. 21. A. 22. P. 13. V. 1. 4. C. vii. 8+7.
vii. M. B. 7.

This fish has much of the external aspect of *Thyrsites Prometheus*. The body is very elongate, compressed, covered with small, deciduous, cycloid scales, which are elegantly marked with concentric striæ; the height of the body, compared with the total length, is as 1 to 13. The head is scaly in every part, but unarmed; it is compressed, and the cheeks are flat. There is a broad groove between the eyes and on the snout, as in *Aphanopus*. The length of the head, compared with the total length, is as 1 to $4\frac{3}{4}$. The round eye is placed at the side of the head, and does not quite reach to the outline; it is contained $9\frac{1}{2}$ times in the head, is rather more than a diameter distant from the other eye, and each is distant about $4\frac{1}{2}$ diameters from the tip of the snout. The members of each pair of nostrils are distant from each other, and the hinder one is a small oblique slit. The bones of the scaly opercle and subopercle are thin and radiostriate; the border of the former has an angular projection. The gill-openings are wide. The snout is long, and is terminated by a large conical cartilaginous process, which projects much beyond the jaw. The mandible has a similar but longer cartilaginous process. These processes (some rudiments of which may be seen in *Aphanopus*) bestow on the head somewhat of the appearance of *Sphyræna vulgaris*. The rictus is large. The upper border of the mouth is formed entirely of the premaxillary, which is broad above and narrow below. The scaly maxillary, which lies exposed behind, and is broad below and narrow above, does not quite reach back to the vertical from the middle of the eye. The mandibular bones project a little beyond those of the upper jaw.

The dentition bears much resemblance to that of *Aphanopus*. In each jaw there is a single series of moderately strong teeth, which are pointed, compressed, and subtriangular; those of the lower jaw are about thirteen in number on each side, and are rather larger than those of the upper jaw, where there are also thirteen on each side, in addition to three pairs of considerably larger teeth, which stand a little within the line of the others, near the fore end of the jaw. These teeth increase in size backwards, the last pair being about four-tenths of an inch long.

All these are pointed and compressed, and have a slight double curvature. The three pairs stand opposite the second, third, and fourth pairs of teeth on the lower jaw. There are no teeth on the palatine bones or on the vomer. The tongue is smooth, narrow, and black like the pharynx and the inside of the gill-covers.

The first dorsal fin commences at the nape in front of the root of the pectoral fins. It rises from a groove, is moderately high, and its spines are weak, distant, and grooved, but not tuberculated. It is rather higher behind than in front, and there is an interval equal to about one-fifth of the length of the head between it and the second dorsal, which is high in front, where it is subtriangular. The fourth and fifth rays are the longest. The last four or five rays are short

and much branched, the last ray being elongated*. The anal fin is preceded by a stout broad two-edged spine, similar to that possessed by *Aphanopus*. This fin is opposite and similar in shape to the second dorsal. The first ray is weak, but appears to be a simple spine; and the last ray is somewhat prolonged. The pectoral fins are pointed, and inserted below the middle of the height. The ventral fins are thoracic, being placed close together a little behind the pectoral fins; they are small, being only equal to one-eleventh of the head, but consist of a spine, which is stout below and slender above, and four soft rays connected by membrane. The ray next to the spine is the longest. The caudal fin is well developed and deeply cleft; its rays are very broad below.

The unarmed lateral line falls gently from the shoulder to the middle of the body, whence it is horizontal to the caudal fin. The tail has no keel, and is not depressed behind the second dorsal. There is no barbel nor any prominent papilla near the vent.

The body of the fish is uniformly lead-coloured, with black fins; its skin, when the scales have been removed, is black.

The peritoneum is black; the stomach long and simple; the intestinal tube straight. There are about eight pyloric cæca, and a long narrow air-bladder with thin walls.

Only a single specimen has occurred, and this was taken in the month of April last. It had a length of $36\frac{1}{2}$ inches, a height at the ventral fins of $2\frac{8}{10}$ inches, and a thickness at the same place of $1\frac{3}{10}$ inch. Decidedly Trichiurid as it is, it differs from all the genera of that family hitherto known, and a new genus must be established for its reception. From *Aphanopus*, with which it agrees in having a dagger-shaped spine behind the vent, it differs in being possessed of scales and ventral fins; from *Lepidopus* it is distinguished by having two dorsals and scales, and by the absence of teeth from the palatine bones; from *Trichiurus* by having two dorsal fins, a well-developed caudal fin, and many-rayed ventral fins; from *Epinnula* by having a single lateral line, and by the separation of the dorsal fins; from *Thyrstites* by having no teeth on the palatine bones, and by the separation of the dorsal fins; from *Dicrotus* in having scales and many-rayed ventrals; and from *Gempylus* by the presence of scales and the absence of finlets. Moreover in the two known species of the last-named genus each ventral fin is represented by a spine. From the *Sphyrænidæ*, it may be mentioned in passing, it differs by the ventral fins being thoracic, and by the proximity of the dorsal fins.

The following are the dimensions in inches of the principal parts of the specimen, which has been added to the collection of fishes at the British Museum:—

Length of head	7 $\frac{7}{10}$
Eyes, diameter	$\frac{8}{10}$
—, distance apart	$\frac{9}{10}$
—, distance from tip of snout	4 $\frac{1}{4}$

* The membrane connecting the last four or five rays of the second dorsal and the last five or six rays of the anal fin is much torn in the specimen. In an older fish they might possibly form detached finlets, the structure of the rays bearing much resemblance to those of the finlets possessed by some Trichiurid genera.

Upper jaw bones, length	$3\frac{3}{10}$
First dorsal, distance from tip of snout	$6\frac{3}{4}$
— —, length of base	$16\frac{1}{2}$
— —, highest spines	$1\frac{1}{2}$
— —, interval between first and second dorsal	$1\frac{1}{2}$
Second dorsal, length of base	6
— —, length of fourth and fifth rays	$2\frac{1}{2}$
Pectorals, length	3
— —, width of base	$\frac{1}{2}$
— —, distance from snout	$7\frac{1}{8}$
Ventrals, length	$\frac{7}{10}$
Vent, distance of its vertical from tip of mandible	24
— —, distance from anal	1
Spine before anal, length	$\frac{7}{10}$
Caudal, length of external rays	$5\frac{1}{3}$

Fam. SCOMBRIDÆ.

SCHEDOPHILUS ELONGATUS, sp. n.

D. 39. A. $\frac{3}{21}$. P. 21. V. $\frac{1}{5}$. C. iii. 9 + 7. iv. M. B. 7.

Uniformly purplish black, somewhat paler on the belly. The body is elliptico-oblong and much compressed, the height, compared with the total length, being as 1 to $4\frac{1}{2}$, and the length of the head to the total length as 1 to 5.

The head is scaleless above, gelatinous, punctate, and arched. The snout is abbreviate and abrupt, but does not form a quadrant with the head, as is the case in *S. Berthelotii*. The opercle and subopercle are scaly and striate, the striæ ending at the margin in minute teeth. The preopercle is scaleless, the border being striate, and the striæ projecting as blunt teeth*. The eye is round, its centre is placed about the middle of the height, and it is surrounded by radiating grooves; it is contained five times in the head; the space between it and the tip of the snout is equal to a diameter and a half. The mouth is of moderate size, and the jaws are equal; each is set with a single series of small sharp teeth. There are no teeth on the palatines or the vomer. The tongue is broad, smooth, and white.

The long scaly dorsal fin commences behind the root of the pectoral fin; it is low in front, highest at the middle, and has an angular termination. The spinous rays are not to be distinguished from the others. The pectoral fins are pointed, and have broad roots; they are inserted below the middle of the height, and their fourth and fifth rays are the longest; they scarcely reach more than halfway to the vent. The pointed ventral fins are inserted near together, just under the posterior angle of the root of the pectoral fins. The second soft ray is the longest; this fin does not reach halfway to the vent. The scaly anal fin is high in front and pointed behind; it terminates opposite, or perhaps a little behind, the termination of

* In describing *S. Berthelotii* (Ichth. Canarienne, p. 45), M. Valenciennes says that the opercle, subopercle, and interopercle are not scaly, whereas all the opercular pieces are most certainly scaly.

the dorsal; its base is about half as long as that of the dorsal fin. The caudal fin is deeply emarginate; its membrane has scales upon it between the rays.

The lateral line rises slightly on the shoulder, then descends gently to the middle of the height, and from a little behind the middle of the total length it is horizontal. The scales are very small, cycloid, and concentrically striate; those of the lateral line are about 160 in number.

The single individual from which these characters have been drawn up, though bearing considerable resemblance to *S. Berthelotii* (which occasionally occurs at Madeira), is sufficiently distinct from that and other known members of the genus to warrant the definition of a new species. From *S. Berthelotii* it is easily distinguished by the smaller scales, the longer body (height to length as 1 to $4\frac{1}{2}$, instead of 1 to 3), the shorter head (head to length as 1 to 5, instead of 1 to 4), the longer snout (equal to $1\frac{1}{2}$ diam. of the eye, whereas in *S. Berthelotii* it is less than one diameter of the eye), by the shorter pectoral and ventral fins only reaching about halfway to the vent (whereas in *S. Berthelotii* they extend backwards as far as the vent), and by the commencement of the dorsal fin being placed behind the root of the pectorals, whereas in *S. Berthelotii* that fin commences considerably in front of that point. A thick purple fluid exuded from the vent of the dead fish; and the same thing has occurred in the case of all the specimens of *S. Berthelotii* that have occurred. The fishermen give to both these species the name of "Praga."

The total length of the specimen (which was taken in the month of April last) is $14\frac{7}{10}$ inches; the height between the ventrals and the vent is $3\frac{3}{10}$ inches, and its thickness thereabouts is $\frac{1}{8}$ inch. The dimensions of the principal parts are expressed in inches in the following table:—

Length of head	$2\frac{8}{10}$
Diameter of eye, rather more than	$\frac{1}{2}$
Dorsal, length of base	$6\frac{1}{2}$
——, height at middle	$\frac{7}{8}$
——, distance from snout	$3\frac{5}{8}$
Pectorals, length	$1\frac{1}{2}$
——, breadth of base	$\frac{6}{10}$
——, distance from snout	$3\frac{1}{10}$
Ventrals, length	$1\frac{1}{4}$
Vent, distance of its vertical from snout	$6\frac{1}{4}$
——, distance from anal	$\frac{1}{2}$
Anal, length of base	$3\frac{3}{10}$
——, height in front	$\frac{9}{10}$
Caudal, length of longest rays	$2\frac{1}{2}$

Fam. TRIGLIDÆ.

SETARCHES, gen. nov.

Head and body compressed; no transverse groove at the occiput; vertex without spines; preoperculum armed; body covered with cycloid scales; without skinny appendages. One dorsal fin, divided by a notch into a spinous and a soft portion. No pectoral appendages.

Villiform teeth in the jaws, on the vomer, and on the palatine bones. Lateral line a broad scaleless groove. Six or seven branchiostegal rays. Pyloric appendages in small number. No air-bladder.

It will be observed that this new genus is closely related to *Sebastes* and *Scorpena*, but more nearly to the former than to the latter. From both it is distinguished by the cycloid scales, the scaleless lateral line, and the absence of spines from the vertex. The single individual on which it has been founded was taken in the month of December 1861, and is now in the British Museum. It was at first assigned to the genus *Sebastes*, but was at once discriminated from all the species of that genus previously taken at Madeira. With these species I shall compare it throughout my description, with the view of aiding other observers in identifying specimens, if they should occur.

SETARCHES GÜNTHERI, sp. n.

D. 11 $\frac{1}{9}$. A. $\frac{3}{5}$. P. 22. V. $\frac{1}{5}$. C. iv. 7+7. iv.

The height, compared with the total length, is as 1 to 4. The head is large, being contained in the length only $2\frac{3}{4}$ times. It is scaleless, and without prominent spines on the vertex; the bones are cavernous; the space between the eyes is flat and marked by several low ridges. At the back of the head are two broad flat spines pointing backwards.

The eye is contained $5\frac{1}{3}$ times in the head, and is distant from the tip of the scaleless snout about a diameter and a half. The space between the eyes is considerably more than equal to the diameter, and is to the length of the head as 1 to $4\frac{1}{2}$. There are no spines above the postero-superior part of the orbit. The snout is rounded and truncate; its length is equal to one-third of the length of the head. There is a skinny appendage at the posterior margin of the anterior nostril. The opercle is scaly, and is crossed by two strong crests terminating in long spines, which reach up to its edge; the higher of these spines is to the length of the head as to 1 to $7\frac{1}{2}$. At the border of the scaly preopercle there are five spines, pointing backwards, of which the three highest are long, narrow, and parallel, the middle one of the three being equal in length to the larger of the opercular spines: these five spines occupy the position of those of *Sebastes dactylopterus*.

The mouth is moderately large. The maxillary is broad below, is vertically truncate, and reaches back to the posterior margin of the eye. The under jaw is a trifle longer than the upper, which is notched in front. Both jaws, the palatines, and the vomer are set with bands of villiform teeth. The tongue is free near the apex, is very thick, and has a thin spatuliform projection in front similar to that seen in front of the tongue of *S. Kuhlii*, which, however, does not reach so far forward as in the case of the present species. The tongue and pharynx are black. The branchiostegal membrane, when the mouth is closed, is almost concealed by the opercular pieces and the very broad mandibular bones.

The dorsal fin is long, commencing before the root of the pectoral; its spines are stout, and the soft portion rounded. The anal fin is short, and terminates opposite the termination of the dorsal fin; its

third spine is the longest, and is to the length of the head as 1 to $3\frac{1}{3}$, but it is shorter than the first three soft rays. The pectoral fin is broad and long, reaching back to the commencement of the anal fin, its length being to the total length as 1 to $3\frac{2}{3}$. The first two and the last five rays are simple, the others branched. The tenth, eleventh, and twelfth rays are the longest, and the last rays are the shortest. None of them project beyond the membrane. The ventral fins are placed together under the roots of the pectoral fins; they are pointed, and extend over rather more than half the distance between their roots and the commencement of the anal fin. The spine is stout; the two first soft rays longer than the others. The caudal fin is truncate, and is scaly only at the base. The vent is far back, being under the base of the twelfth dorsal spine.

The scales are very small, and cycloid, offering no roughness to the finger when drawn from tail to head. The broad and scaleless lateral line descends gently from the shoulder to the tail, where it is straight; its membrane has thirty divisions, but the rows of scales that abut upon it are about eighty-six in number.

The cæcal stomach was found to be of moderate length, and there were only two pyloric cæca. The intestine was long, having one convolution. No air-bladder was observed. Its colour was a uniform pinky red, minutely dotted with black.

In consequence of the anterior part of the dorsal fin having been injured, the comparative length of the spines could not be ascertained. The number of the branchiostegal rays on one side is six, on the other seven.

From *Sebastes dactylopterus*, *S. Kuhlii*, and *S. maderensis*, the only three Madeiran species of that genus hitherto known, it is well distinguished by the flatness of the head between the eyes, by the absence of prominent spines from the vertex, by the third (not the second) anal spine being the longest, by the broad membranous lateral line, and by the cycloid scales. From the first-named species it is further distinguished by the soft rays of the dorsal fin being nine in number, in place of twelve; and from the two latter species by the black pharynx. With *Sebastes filifer*, Val. (Ich. Can. p. 21, pl. 2. fig. 2), this fish agrees in having scales with simple borders; but it differs (in addition to the characters by which the genus *Setarches* is separated from the genus *Sebastes*) in the number of the rays of the pectoral fin (22 in place of 16), in having, not all, but only the two first and the last five rays of that fin simple, in possessing five in place of four preopercular spines, and in the smaller scales (86 in place of 62 along the lateral line).

Dedicated to my friend Dr. A. Günther, the well-known ichthyologist, to whom I am indebted for much valuable instruction.

The following are the dimensions in inches of the principal parts of the specimen, which is now in the British Museum:—

Total length	9
Height	$2\frac{1}{4}$
Length of head	$3\frac{1}{10}$
——— of second preopercular spine.....	$\frac{4}{10}$
Diameter of eye.....	$\frac{11}{20}$

Length of maxillary	$1\frac{6}{10}$
— of base of dorsal fin	$3\frac{1}{2}$
— of pectoral fin	$2\frac{1}{2}$
— of base of pectoral fin	$\frac{7}{8}$
— of ventral fin	$1\frac{1}{2}$
— of base of anal fin	$\frac{3}{4}$
— of third anal spine	$\frac{19}{20}$
— of caudal fin	$1\frac{8}{10}$
Distance of vertical of vent from snout	$5\frac{3}{4}$

Fam. PERCIDÆ.

PRIACANTHUS INSULARUM, sp. n.

D. 10. 15. A. 3. 15. Scales of lateral line, about 76.

This species has a close resemblance to *P. macrophthalmus*, from which, however, the following differences distinguish it:—1. The height of the body to the total length is as 1 to $3\frac{3}{4}$, not as 1 to $2\frac{2}{3}$. 2. The diameter of the eye is to the length of the head as 1 to $3\frac{1}{5}$, not as 1 to $2\frac{2}{3}$. 3. The number of soft rays in the dorsal fin is 15, not 13 or 14. 4. The length of the second dorsal spine is to the last as 1 to 2, not as 1 to $1\frac{2}{3}$. 5. The edge of the opercle has one flat spine, and above this there is a rounded plate; whereas the edge of the opercle of *P. macrophthalmus* has two flat spines. 6. In *P. macrophthalmus* the two borders of the preopercle form a right angle, and the margins are strongly denticulated. In the present species the angle formed by the free borders of the preopercle is obtuse, and the margins are very finely serrate. 7. The caudal is slightly emarginate. 8. The fins have not black edges, as is the case with *P. macrophthalmus*.

This species is established on a single specimen, taken last May, which had a length of $14\frac{1}{4}$ inches, and a height of $3\frac{3}{4}$, the head being $3\frac{5}{8}$ inches long. The eye had a diameter of $1\frac{1}{5}$ inch. The example was coloured a uniform red, and it is now in the British Museum.

MISCELLANEOUS.

Use of the Weights and Measures of the Metric System in Scientific Pursuits.

On the 18th of November last, a numerous deputation, composed of individuals of great eminence and belonging to various occupations and professions, waited on the Rt. Hon. Milner Gibson, M.P., President of the Board of Trade, for the purpose of representing the expediency of carrying into effect the recommendations of the Committee of the House of Commons which was appointed last session to consider the advantages of an international system of weights and measures. This Committee, after a long and careful investigation of the whole question, had unanimously resolved to recommend the adoption, for all purposes and throughout the British Empire, of the weights and measures of the metric system. Mr. Wm. Ewart, as Chairman of the Committee, introduced the deputation to the minister, who listened to all the speakers with the greatest attention and courtesy, and returned a very encouraging answer.

The claims of natural history were advocated by Professor Owen,